

COLONY OF MAURITIUS.

IMP. BUR.  
14 FEB. 1921  
ENTOM.

## ANNUAL REPORT

ON THE

# DEPARTMENT OF AGRICULTURE

FOR 1913.



No. 1910.

The Honourable

The Colonial Secretary.

I have the honour to submit the administration report on the working of the Department of Agriculture for the year ending December 31st. 1913.

### Staff and Organization.

2. The Department of Agriculture was organized under Ordinance No. 30 of 1912, brought into force by Proclamation 33 of 1913. The Station Agronomique which had been in existence from 1893, and the Bureau of Agricultural Statistics of the Chamber of Agriculture, dating from 1909, were absorbed into the Department. These institutions had been financially supported by the Planting community and have done useful work for the agriculture of the colony. It is fitting in the first report of the Department of Agriculture to record appreciation of the value of work done by these institutions and of the public-spirited action of the planting community in supporting financially the conduct of researches without Government assistance. It will be possible to profit by the experience of the officers of these institutions in the enlargement of the scope of agricultural experiments and researches under the Department of Agriculture.

The Department commenced operations from May 10th., 1913, but the control of the Gardens of Pamplemousses and Curepipe was undertaken by the Forest Department until July 1st.

The following officers were appointed to the Department :—

Director	...	...	F. A. Stockdale, M.A., F.L.S., with effect from January 9th., 1913.
Asst. Director & Chemist	...	P. Boname, Ing. Agr., formerly Director of the Station Agronomique, with effect from May 10th.	
Entomologist	...	D. D'Emmerez de Charmoy, formerly Curator of the Museum of the Mauritius Institute, on probation from May 1st.	
Officer in charge of Phytalus Smithi destruction	...	H. Motet.	
Chief Clerk & Statistician	...	H. Robert, formerly Statistician of the Bureau of Statistics of the Chamber of Agriculture, with effect from July 1st.	
Asst. Chemist	...	P. de Sornay, formerly Asst. Director of the Station Agronomique, with effect from May 10th.	
Asst. Clerk	...	R. Toureau, with effect from June 1st.	



*Gardens and Plantations.*

Chief Overseer ... C. A. O'Connor, with effect from Sept. 5th.  
 Overseer, Paml. Gardens ... M. Leclerc.  
 „ Reduit Grounds ... A. Margueritte, with effect from Sept. 5th.  
 „ Curepipe Gardens ... F. Leclerc (acting).

**Absences.**

The following absences on leave have been granted to officers during the period under review :—

Director ... Sick leave from Sept. 26th. to Nov. 5th.  
 Entomologist ... Duty leave to visit South Africa from October 20th. to December 31st.

Overseer, Reduit Grounds ... Sick leave from August 5th. to Sept. 4th.  
 Officer in c/o Phytalus des- } Sick leave from 3rd. to October 19th.  
 truction ... }

**Buildings and Equipment.**

4. The building of suitable offices and laboratories received early attention. The existing buildings and laboratories of the Station Agronomique were available and it was decided to make suitable enlargements and alterations to them. Equipment was ordered from Europe and the major part was received during the year. The actual enlargements and alterations to buildings were completed by the Public Works before December 31st. with the exception of the Insectary, but it was not found possible to prepare all the furniture and internal fittings before the close of the year. The following money was voted, mainly from the balance of the Station Agronomique Funds, for buildings and equipment :—

Buildings and furniture	...	Rs. 47,900
Laboratory equipment	...	21,000

The accounts for Buildings and Equipment had not been met before December 31st. and it is therefore not possible to give a statement of the actual expenditure incurred for these works.

With completion of internal fittings and equipment the Department will be in position to carry out research investigations in all its laboratory branches.

**Field Investigations.**

5. The Director has visited the different localities of the island in order to gain first-hand information of the agricultural conditions prevailing. Other officers of the Department have been encouraged to travel to make field and factory observations on the estates themselves. These visits appear to be appreciated by the planting community and requests for officers to visit estates are not infrequent.

**Divisional Reports.**

6. *Annexure 1* gives details of the work of the Division of Phytopathology. Potato and tomato diseases were common during the year and occasioned damage in most districts. A disease of manioc also caused considerable damage in the northern section of the Colony. Diseases on sugar-cane were not common during the year.

7. *Annexure 2* shows the work of the Division of Chemistry. Analyses of farm-yard manures were numerous during the year. A complete soil survey of the Colony is being undertaken by this Division, and analyses of canes under experimental culture involve considerable work during crop time.

8. *Annexure 3* details the work of the Division of Entomology. Investigations into insect-pests of sugar-cane, banana, citrus plants and vegetables were made during the year. There was an increase in some districts of the Gros Moutouc (*Oryctes Tarandus*) especially on those estates where intensive cultivation is practised. The parasite of this pest is being investigated.



Parasites (*Tiphia parallela*) of *Phytalus Smithi* were introduced in August from Barbados and have been established in the insectary at Pamplemousses. Their increase up to the end of the year was satisfactory, if somewhat slow. The large number of *Phytalus Smithi* caught during December was unexpected, but it is satisfactory to note that the spread of this pest is being kept in control and that the work is being carried on more economically than in former years.

9. *Annexure 4* shows the work of the Division of Statistics. Details about irrigation on Estates have been obtained for the Government's Consulting Irrigation Engineer and the crop estimates of this Division appear to be appreciated by the agricultural and commercial communities.

10 *Annexure 5* indicates the work of the Gardens and Plantation Division. Experimental work in connexion with sugar-cane and economics other than sugar have been planned and the establishment of experimental plots on estates in different districts of the Colony has been arranged for.

11. The proceedings of the Board of Agriculture are briefly recorded in *Annexure 6*.

### Publications.

12. Arrangements have been made for the regular publication of experimental work and scientific investigations but owing to shortage of printing materials, this work could not be begun during the year under review. Several reports have been prepared for the Board of Agriculture and have been printed for general distribution.

### Legislation.

13. Proclamations dealing with control of Plant pests and diseases have been revised. Proclamations dealing with the introduction of cattle from India have been under consideration and a Consolidated Vanilla Ordinance has been discussed by the Board of Agriculture.

An Ordinance (No. 4 of 1913) to provide for the establishment of Co-operative Credit Societies in the Colony was passed by the Council of Government early in the Session of 1913.

### Cooperative Credit Societies.

14. The Director of Agriculture acted as Registrar of the Cooperative Credit Societies from July 26th. until the arrival of the Registrar, Mr. Lal<sup>a</sup> Jai Gopal, from India on October 13th. During this period the Societies of Phoenix-Vacoas, Long Mountain, Triolet and Belle Rose (Rose Hill) commenced operations, and their meetings were attended. This afforded an opportunity for the Director to get into touch with some of the small planters of the Colony, to indicate to them the advantages of co-operation, and to advise them on matters of cultivation.

### Educational.

15. Arrangements for training students in the sciences of agriculture at the laboratories and experimental plots of the Department have been under consideration.

16. The Educational scheme of the Reformatory has been remodelled in consultation with the Director of Public Instruction and the Inspector General of Police. Under the revised scheme, 15 lads are sent regularly to the Central Experiment Station, Reduit, for practical training in the cultivation of sugar-cane and other crops.

17. A scheme for teaching Nature Knowledge and Manual Training in the Elementary Schools of the Colony, together with the establishment of School Gardens and workshops has been framed in conjunction with the Director of Public Instruction.



### Expenditure.

18. The expenditure on the Department from July 1st. to December 31st. has been as follows :—

Salaries ...	...	...	Rs. 20,409.79
Maintenance of Gardens	...	...	4,045.23
„ Apprentices	...	...	272.53
Agriculture, General Services	...	...	4,022.97
„ Prevention of diseases	...	...	8,844.94
„ Travelling	...	...	774.00
Total			Rs. 38,369.46

### Receipts.

19. The receipts have been as follows :—

Sale of plants &c.	...	...	Rs. 335.21
„ canes	...	...	3,557.02
Analytical fees	...	...	660.00
Total			Rs. 4,552.23

### General Survey of Agricultural Conditions during 1913.

Sugar-cane.

20. The climatic conditions during the year were, on the whole, favourable to the sugar-cane. In the latter part of February and during the month of March a check of growth was experienced owing to dry weather and low temperatures. The season from April to June was, however, exceptionally favourable, and the dry months of September and October were conducive to rich juices. The District of Savanne suffered throughout the year from low temperatures and in some parts of this district the expectations for the crop were not realized. No damage was done to canes by cyclones during the year and the dry crop season was favourable to pure juices. The end of the year rains were late except in the Northern Districts. Fifty-nine factories worked during the year and the average extraction was 10.70 per cent. Chemical control was provided by thirty-two factories, and of these twenty contributed to a fortnightly mutual control sheet inaugurated by the Department in co-operation with the Society of Chemists. Considerable improvements in machinery took place during the year but the heavy crop was responsible for several serious breakages. The comparative ease with which the large crop of 250,000 tons was handled is creditable to the sugar factories of the colony. Most factories were worked up to their normal maximum capacity—working the 18–20 hours per diem as is customary here—and the rapidity and skill with which additions, repairs and alterations were undertaken by the local engineering firms deserve to be recorded.

Suction Gas plants were installed in one factory; economies of fuel have thereby resulted. Improvements are being made in the furnaces and several factories during the year consumed bagasse only as fuel. On the whole there appears to be room for further improvement in the direction of furnaces. The methods of application of water of imbibition also deserve close enquiry. Crystallization in motion is being generally adopted and has been the subject of attention at the hands of sugar-chemists. Double “turbine” and the installation of the Weston type of centrifuga's have resulted in the economy of a large amount of labour in the factory. All factory owners are now endeavouring to economize labour as far as possible. The mechanical unloading of canes at the chain was to have been adopted by one estate, but delays in forwarding the machinery from Europe necessitated abandonment of installation until next crop. The breakage of grain by sugar elevators also received consideration during the year and the locally made installation of one factory appears to be an advance over the old systems. The use of disinfectants in the factory during crop time to prevent inversion of juices is being generally adopted.

Small planters contribute approximately 23% of the total sugar-crop of the colony. They supply canes to the factories and either receive sugar in exchange or are paid cash. There was in some parts keen competition for small



planters' canes during the year but arrangements made between factories situated close together for dealing with small planters' canes in their vicinity appear to have worked satisfactorily. The small planters received fair prices for their produce—prices which, considering the price of sugar on the world's market, on the whole compare favourably with the prices that would have been obtained if supplied to factories on a contributory co-operative basis, on terms similar to those in vogue in other sugar-growing countries.

The White Tanna Cane—a sport obtained locally in 1893 from the Striped Tanna imported from the Pacific through Australia—is the standard variety cultivated in the Colony. The upper regions are almost entirely cultivated in this variety at the present moment and its growth is being very carefully watched for any signs of disease or deterioration. In Flacq, Grand Port and the lower portion of Plaines Wilhems the Perromat seedling 55 gives excellent results, while in the wetter regions the Striped Tanna is cultivated to advantage. In the central plateau with high rainfall the Iscambine canes are still grown. In the drier northern portions of the Colony D. 130, D. 625, Fotiogo, Seedlings 133 and 33 are being grown. The cane D. 130 is well suited to the coastal regions of the Colony. The Perromat seedling 131 gives good yields in many localities and there has been general satisfaction in certain districts with D. 74. Other canes being grown are seedlings 87, 89, 30, 29, 1237 and 1474. In the factory White Tanna cane gave the most satisfactory results. D. 74 has also given a very good fibre and juice content and was easy of manipulation in the factory. Seedling 55 is poor in bagasse and seedlings 87 and 89 are now being discarded on account of their poor fuel value. Seedling 133 flowers very freely and the area under this variety is being reduced. Some Uba is grown on very poor soils but its juice in the factory is dark in colour and difficult of manipulation.

In the field more attention has been paid to implemental tillage. This may have been brought about, in part at least, by the shortage of available labour in some districts at certain times of the year. The area treated with implements is being gradually extended and I am convinced that this extension will become more rapid when it is realized that the work of one ox is equivalent to the work of three men and that the cost of the upkeep and working of one ox is 80-90 cents per diem (manure being reckoned for interest on capital invested) while the cost of three men is Rs 2.10. There are large areas in the Colony capable of treatment with implements and progressively increasing attention has been given to this method of cultivation during the past two or three years. Implemental tillage has now passed through its experimental stage in the Colony and definite methods suited to the conditions here prevailing have now been decided upon. Some good work was done during the year by the Steam Plough Tackle owned by the Mauritius Assets Company. It is possible that this tackle may be put to greater use in the near future for it is considered that the travelling system, as used in Europe for Steam Plough work, is not impossible of adoption here.

The fertilisation of the sugar-cane and the cultivation of ratoons have been investigated. Further information is required on these points. The establishment of experimental plots on estates in the different districts may solve many questions in relation to the fertilisation of virgins and ratoons, and it is expected that the use of forks in the cultivation of ratoons will result in much benefit in those lands where ploughs cannot be employed.

The question of supplies of irrigation water has been under consideration by the Government during the year and the planting community has taken advantage of the sojourn in their midst of a Consulting Irrigation Engineer from India. The systems of irrigation adopted here appear to be wasteful of water and the planting of canes on slopes on contour lines will have to again receive consideration. I am informed that the contour system of planting was usually adopted on hilly estates before the advent of tramway systems and a return to such a system of planting would undoubtedly result in better average crops, particularly in the drier districts.

Fibre. 21. The production of aloë fibre during the year was above the average and the prices have ruled satisfactory. Some difficulty has been experienced with labour in the manufacture of the fibre, and several small automatic machinery plants have been installed. These plants have not given general satisfaction but two plants are still in operation. Several Suction gas plants were installed in fibre factories and greatly reduced the fuel costs.



A meeting of the Fibre-Growers of the Black River District was held in July to discuss proposals having reference to the introduction of large automatic fibre machinery. This machinery has been ordered by the Government and is to be erected in the Black River District for experimental trial.

Tea.

22. Satisfactory crops were obtained, and the tea found ready sale locally at remunerative prices. These prices are in excess of the wholesale prices of the world's markets, and a very small margin of profit in tea cultivation would result if the Mauritius tea had to compete on the world's market. If a grade of tea special to the Colony could be made a remunerative export trade might be established.

Coconuts.

23. The coconut industry of the Oil Islands is a large one and yielded satisfactory returns during the year. Some plantings of coconuts took place on the Pas Geometriques and on private lands of Mauritius. The plants on most lands stood the very dry season of September to December well and there is every reason to believe that on selected portions of the leeward coast coconuts should flourish. The terms of coconut leases on Pas Geometriques have been under consideration.

Cacao.

24. The cacao crop at one Estate in Grand Port was decidedly satisfactory and an increase of this cultivation could take place in sheltered parts of that district. Improvements in the methods of preparing the cacao are desirable. The prices realized on the European market were satisfactory and it is possible that a local market for "Creole Cacao" could be established.

Coffee.

25. Coffee yielded well during the year. The prices were at first high but fell sharply, to recover again later in the year. The prices obtained were remunerative and an extension of coffee growing could take place. The Arabian variety cannot be cultivated on account of leaf disease but as the outlook on the world's market for coffee is favourable, cultivation of Liberian coffee and trials of Robusta coffee are worthy of wider adoption.

Maize.

26. The main crop was somewhat short and practically no second crop was obtained. The prices obtained were fair, but owing to a lack of proper storage accommodation and drying appliances the crop has to be disposed of rapidly. The methods of sale of maize have been under investigation during the year, as it is hoped, at some time, to arrange for some co-operative system for storage and disposal.

Vanilla.

27. The prices obtained for vanilla during the year were satisfactory and some extensions of plantations have been made. Disease, however, is not uncommon and results in loss of crop and destruction of plants. The control of this disease has received attention during the year.

Pistache.

28. Pistache cultivation increased during the year but short crops were obtained in some districts. Good prices for crops were realized and the establishment of a local oil industry, already commenced, appears to deserve every encouragement.

Manioc, tomatos, potatoes &c. 29. Manioc suffered from a die-back disease in some parts and gave greatly reduced yields. Potatos produced only a short crop owing to the ravages of leaf disease and tomatos also suffered from diseases.

Supplies of vegetables during the year were on the whole satisfactory. The fruit crops of the early part of the year were good, but at the end of the year they were unsatisfactory.

Stock.

30. The introductions of stock from Madagascar were slightly above the average. The demand for cattle for plough work increases and it is possible that implemental tillage does not expand more rapidly through lack of suitable cattle. The Madagascar cattle are large, strong animals, but they easily succumb to surra and other diseases when slightly overworked. There appears to have been an increase in the number of animals that suffered from surra but it is not improbable that the increased introduction of non-immune animals from Madagascar may account in some measure for



this apparent increase of this disease. The majority of cattle that suffered from surra recovered when properly treated and attended to. The breeding of a greater number of animals in the Colony should be easy of realization and steps have been taken for the introduction of cattle from India for the purpose of improving local stocks. Horses and mules suffered, during the year, from attacks of surra and several animals were lost.

Labour.

31. The question of labour has received attention by the planting community through the medium of the Chamber of Agriculture. It has also been under consideration by the Government. It is generally recognised that there is a shortage of available labour for estate work, especially in some districts. Cultivation, in some instances, has suffered from labour not being available at the time when it was needed. Prices during the crop season ruled high in some districts, but this was expected as the crop was a heavy one.

F. A. STOCKDALE.

29th April, 1914.

Director of Agriculture.

ANNEXURE I.

## REPORT OF WORK OF DIVISION OF PHYTOPATHOLOGY.

*During the year 1913.*

Without a fully equipped laboratory it has not been possible to make complete investigations into the life histories of fungi causing diseases. Microscopic examinations have been made of samples submitted by agriculturists for investigation and of collections made personally during visits throughout the various districts of the colony.

Progress reports of these examinations have been made periodically to the Board of Agriculture and have been printed for general information.

It has not been possible to undertake infection experiments in the absence of a green house and appliances for securing pure culture, but with the equipment of a botanical laboratory investigations will be made into the several diseases that appear to be of economic importance at the present time.

### DISEASES INVESTIGATED.

No serious epidemic of fungus disease occurred in the island during the year. The following diseases, however, were the subject of investigation and are being kept under observation.

#### *Sugar-Cane.*

1. Red-rot caused by *Colletotrichum falcatum* was observed on a few virgin canes in the Grand Port District.
2. A top-rot accompanied by quantities of bacteria was noticed in several varieties of canes in the northern district of the Colony.
3. Physiological disorganizations in some of the old varieties and of certain seedlings have been the subject of examination.
4. Several leaf diseases have been noticed throughout the Colony but at present they are of minor importance.

#### *Manioc.*

A serious disease of Manioc was first brought to my notice in the northern districts of the colony. It had up to the end of December been found in Pamplémousses, Rivière du Rempart, Grand Port and the lower part of Plaines Wilhems.

The yields of manioc grown by small planters in the Long Mountain locality as the result of this disease were reduced from an average of 4-6 tons per arpent to an average of not much more than 2 tons.



A species of *Gleosporium* is associated with the disease. The first sign of attack is practically at the junction of the petiole of the leaf with the stem. The fungus then spreads up the petiole and downwards into the stem. All affected leaves fall and the plant shows a kind of "die-back".

Control measures are being organized in Long Mountain, arrangements are being made for spraying experiments and for testing the resisting powers of different varieties of manioc.

#### *Vanilla.*

The *Anthraco*se disease of vanilla has caused the loss of considerable numbers of plants in Grand Port and in Long Mountain. This disease is caused by *Calospora Vanilla*. The *Gleosporium* form of the fungus was found to be common, but the higher forms have, as yet, not been observed.

Remedial measures are being tried against this disease and with new plantations spraying will become a routine operation.

#### *Coffee.*

Arabian coffee (*Coffea Arabica*) suffers throughout the island from attacks of *Hemelia vastatrix*.

On Robusta Coffee plants a disease of the berries and tender twigs has been observed, but the fungus associated with it has not yet been determined.

#### *Tea.*

Grey blight caused by *Pestalozzia Guepini* has been observed in cultivations.

#### *Bananas.*

A disease closely resembling the Panama disease of bananas has been observed at Long Mountain. The "gengeli" banana can no longer be cultivated in this locality. The cavendish or dwarf banana suffers less.

#### *Potatos.*

Leaf disease, caused by *Phytophthora infestans* was prevalent throughout the colony. A stem disease at ground level caused by a species of *Fusarium* was also very destructive. The relationship between these two diseases has not yet been determined. *Phytophthora infestans* was very prevalent during 1913 and the crop of locally grown potatos was, as a result, a very short one. The constant winter fine rains greatly favour the spread of this disease and make its control more difficult than in European countries.

#### *Pistache.*

*Uredo Arachis* was observed throughout the Colony. It causes defoliation and was responsible for short crops of nuts in some localities.

#### *Tomatos.*

1. *Phytophthora infestans* is responsible in winter months for a destructive leaf disease. Spraying with Bordeaux mixture has to be carried out very regularly and systematically to keep the disease in check.

2. *Fusarium* sp. was responsible throughout the year for a collar rot. It can be controlled by applications of quick lime around the stems of the plants. The lime must be freshly burned and the applications must be made early if success is looked for.

3. *Septoria lycopersici* causes spotting of leaves and has been controlled by spraying with Bordeaux mixture.

4. A species of *Gleosporium* produces decay of fruits.

#### *Grapes.*

Mildew caused by *Plasmopora viticola* has been sent in for examination on several occasions during the year.



*Juniper.*

A serious disease of Junipers caused by *Pestalozzia Guepini* has occurred in the Kanaka Forests. It is probable that re-afforesting with Junipers in this locality will be rendered impossible on account of this disease.

*Miscellaneous.*

Cursory examinations of collections of Uredinæ, wood-destroying fungi and other miscellaneous fungi have also been made during the year. Those of economic importance are to be investigated.

*Spraying experiments.*

1. Spraying with Copper Sulphate solution against *Phytophthora infestans* was undertaken during the year. A 3 o/o solution was effective if the work was carried out regularly at intervals of not greater than 3-4 days during very damp weather. A 4 o/o solution was found to be too strong and to cause burning of the leaves.

2. Bordeaux mixture effectively checked *Septoria lycopersici* on tomato leaves for one month after spraying was carried out.

F. A. STOCKDALE.

27th. March, 1914.

## ANNEXURE 2.

## REPORT OF WORK OF THE CHEMICAL DIVISION.

during the year 1913.

Les travaux du laboratoire comprennent les analyses demandées par le public et qui sont payées suivant un tarif spécial, et celles qui sont entreprises pour des recherches diverses.

Les premières ont été au nombre de 180, comprenant 519 dosages ; ce sont :

	analyses.	dosages.
Guanos mélangés ... ..	11	55
„ d'hirondelles ... ..	2	72
Superphosphates et guanos phosphatés.	13	24
Whale Flesh ... ..	9	44
Nitrates de Potasse ... ..	4	5
Sulfates d'Ammoniaque ... ..	12	12
„ de Potasse ... ..	4	4
Engrais divers ... ..	7	15
Ecumes et cendres ... ..	6	28
Fumiers ... ..	37	134
Cannes et jus ... ..	46	92
Chaux ... ..	11	11
Fourrages ... ..	2	8
Sirops ... ..	2	6
Terres ... ..	10	58
Analyses diverses ... ..	4	11
	<hr/> 180	<hr/> 519

Les recettes provenant de ces analyses se sont élevées à Rs. 660.

Les sels chimiques présentent tous une composition moyenne ne variant que dans des limites normales. Ces sels ont évidemment des richesses plus ou moins élevées qui font varier leur valeur commerciale, mais aucune fraude proprement dite n'a été constatée.

Les analyses de fumier ont été nombreuses, et ces engrais donnent lieu, depuis quelques années, à des transactions assez importantes.



La diversité des matériaux employés à leur confection fait varier leur composition et par suite leur valeur dans de grandes limites ; c'est pourquoi la détermination des éléments fertilisants qu'ils contiennent est indispensable tandis qu'elle est beaucoup moins importante lorsque le fumier est produit sur la propriété.

Une dizaine de fumiers ont une richesse exceptionnne par leur taux élevé de l'azote, de l'acide phosphorique ou de la potasse.

Leur composition centésimale moyenne est de :

Humidité ...	42.2	avec des variations de 23.0 à 60.5
Matières minérales...	20.4	
Azote ...	0.95	0.35 à 1.5
Acide phosphorique...	0.75	0.66 à 1.13
Potasse ...	1.33	0.60 à 2.85

Les autres fumiers plus normaux ont donné les résultats suivants :

	moyennes.	extrêmes.
Humidité ...	62.9	avec des variations de 30.3 à 82.2
Matières minérales...	16.18	2.8 à 51.2
Matières organiques...	20.3	12.7 à 22.0
Azote ...	0.52	0.35 à 0.95
Acide phosphorique...	0.35	0.10 à 0.93
Potasse ...	0.44	0.15 à 1.92

Le rapport de la matière minérale à 100 de matière organique a été de 80.2 et a varié de 22.0 à 230.0.

En outre des analyses précédentes les travaux du laboratoire comprennent :

	analyses.	dosages.
Cannes, analyses des jus pendant la coupe ...	1207	2414
„ analyses complètes, ligneux, etc. ...	22	154
Engrais divers ...	4	32
Fourrages, analyse immédiate et cendres ...	10	148
Cannes, matières minérales suivant engrais ...	14	252
Caféiers, matières minérales ...	2	24
Terres ...	2	30
Recherches sur le mélange de mélasse et de fumier ...	50	108
„ „ „ de mélasse et de terre...	15	106
Analyses diverses ...	9	21

Les analyses de cannes ont déjà été publiées en partie dans un précédent rapport soumis au Board d'Agriculture ; les autres et celles qui présentent un intérêt général le seront prochainement s'il y a lieu.

Pendant la coupe de 1913, une feuille bi-mensuelle de Contrôle Chimique Mutuel fut instituée par le Département et confiée aux soins de Monsieur P. de Sornay, Assistant Chimiste du Département.

14 Avril, 1914.

P. BONAME,  
Assistant Directeur & Chimiste.

ANNEXURE 3.

#### REPORT OF DIVISION OF ENTOMOLOGY FOR 1913.

The Entomologist assumed duties on May, 1st, 1913, and the fitting up of a suitable laboratory was early considered. Detailed work was limited at the beginning by reason of lack of equipment. A few species were, however, closely studied and their life histories have been briefly summarized in reports to the Board of Agriculture.

Stocks of sprayers and insecticides have been ordered from Europe as they are not obtainable in the local market.

Data respecting the dissemination and habits of the more prevalent insects of economic importance have been gathered and the extent of damage done by them has been the subject of enquiry.



A collection of insects injurious to Agriculture has been begun and a complete one of those injurious to the sugar-cane was exhibited at the Show of the Société Horticole in October.

Visits were paid to Sugar-Estates and elsewhere and enquiries made into the insects injurious to the sugar-cane and to other crops.

The following is a brief list of the insects reported to this Division as having been more or less injurious to agricultural crops during the year :

#### SUGAR-CANE.

##### *Oryctes tarandus*, Gros Montouc.

As in previous years this insect was prevalent on certain sugar-estates. The method of digging out the larvae was adopted more widely and has proved to be highly beneficial. It is hoped that when the life history and habits of this pest have been more thoroughly investigated and the reason of the scarcity of its parasite in certain districts has been found out, it will be possible to reduce its numbers considerably.

##### *Lachnosterna* sp.

This grub was found again at Bassin Estate but in smaller numbers. Control measures have been responsible for a noticeable reduction. This pest seems at the present time to be limited to Bel Ombre and Bassin Estates.

##### *Aphis sacchari*.

This plant louse was observed in great numbers on two sugar-estates of the Northern District. For various reasons remedial measures could not be applied. By the middle of July all the insects were destroyed by an entomogenous fungus.

##### *Chionaspis tegalensis*.

This scale insect was found heavily infecting certain fields at Long Mountain. Burning previous to cropping was suggested in order to protect the ratoon and to avoid the dissemination of the pest.

##### The white borer.

A small greyish moth, still undetermined, was found very abundant in virgin canes all through the island.

##### *Phytalus Smithi*, Arrow.

A census of the infected area was made in May-June in order to ascertain the approximate number of insects per acre, the worst infected spots, and the spread, if any, of the insect. The details and conclusions of this Census were reported to the Board of Agriculture at the Meeting held in July. This census indicated that no spread of the pest was taking place and that a reduction in the number of larvae had been accomplished by means of vigorous control measures. The number of beetles caught during the last three months was, however, enormous. During the whole of 1913 some 34,122,063 insects, were destroyed against 15,159,931 in 1912 and 24,486,952 in 1911. It is possible that the increase in numbers in 1913 has been due to two main factors: first, the lower rates of the premium in 1912 which obviously compelled the beetle hunters to capture a greater number of insects and secondly a more thorough knowledge of the habits of the insect. The control work against this pest has been under the supervision of Mr. H. Motet.

##### *Tiphia parallela*, Smith.

An insectary was built in Pamplémousses for breeding this wasp discovered in Barbados as being the principal enemy of *Phytalus*.

Two invoices of cocoons, one in cold storage and the other by parcel post were received in June and July respectively but no insects hatched out. A third invoice forwarded in better condition i.e., in cases containing soil and food, reached this island in the pupal stage on the 15th of October; *Phytalus* larvae placed in the Insectary were found parasited. Up to the end of December some adults, chiefly males, had been observed in the Insectary.



*Miscellaneous insects.*

Great numbers of insects well-known by the damage caused to various crops were noticed in orchards. They are as follows :—

Fruit fly, *Ceratitis capitata* ;  
 Cucurbit fly, *Taeniosia ferruginea* ;  
 Black Weevil, *Cratopus punctum* ;  
 Bean fly, *Agromyza phaseoli* ;  
 Adoretus beetle, *Adoretus versutus* ;  
 Cutworm, *Prodenia littoralis* ;  
 Lawn cutworm, *Crambus* sp.  
 Banana Borer, *Sphenophorus striatus* ;  
 Green Scale, *Lecanium viridae* ;

and numbers of mealy bugs and scale insects (Diaspidinae).

Information respecting life histories and habits was forwarded to persons sending in insects for examination and remedial measures were suggested.

*Field work.*

The eelworm (*Heterodera radiculicola*) seriously damaged tomato at Long Mountain. A series of experiments was started in July but the results are not entirely satisfactory. Further trials of control measures will be undertaken in 1914.

The lawn cut worm which for the last few years has been a serious pest to lawns was successfully controlled at Quatre Bornes and Vacoas by means of an application of Kerosene Mixture made as follows :

To 25 grams Common soap dissolved in 500 c. c. boiling water add 1 litre petroleum, gradually stirring the while.

Add to 600 c. c. of this emulsion 400 c. c. of Phenyl or 300 c. c. of Creoline.

A 2 o/o solution of the above does not affect grass and is employed at the rate of 10 litres per 16 sq. feet for the destruction of underground caterpillars and moutoucs.

D. D'EMMEREZ DE CHARMOY,

4. 4. 14.

Entomologist.

## ANNEXURE 4.

## REPORT OF DIVISION OF STATISTICS.

Since appointment as Chief Clerk & Statistician to the Department of Agriculture on July 1st. the following statistical work has been undertaken :—

*Irrigation Figures.*

Figures respecting irrigation of Estates were collected for the Government Consulting Irrigation Engineer. The following summary of these investigations is worthy of record :

## ESTATE 1.

Period : 1905-12 (8 years).

Average yield (metric tons per arpent) of Virgins :

	<i>Non-irrigated fields.</i>	<i>Irrigated.</i>	<i>Difference.</i>	
	tons.	tons.	in tons.	per cent.
1913	17.775	27.9	+10.125	56.9 o/o
...	21.77	35.52	+13.75	63.16 o/o

## ESTATE 2.

*General average, T. per arpent of irrigated section.*

General average of  
5 last years.

1906-7.	7-8.	8-9.	9-10.	10-11.	11-12.	12-13.	
27.14	22.43	24.4	35.6	28.94	12.9	26.4	26.06



*Whole Estate.*

31.8    25.5    25.03    29.32    23.87    14.9    22.04    22.88

Irrigation on this Estate began to be regularly applied in 1908-9.

Some fields outside the irrigated section are occasionally irrigated ; moreover, in the upper part of the Estate—the unirrigated part—the rainfall is very sensibly superior to that of the lower, or irrigated section.

*ESTATE 3.*

1909-13... *Average T. per arpent.*

<i>Virgins.</i>		<i>Ratoons.</i>		<i>General average.</i>	
Irrigated	non-irrig.	irrig.	non-irr.	irrig.	non-irrig.
31.69	23.81	24.6	18.15	26.19	19.44

*Yield of Cane in relation to Rainfall.*

A preliminary study of the relation of rainfall on the average yield in cane on a certain number of unirrigated estates for a period of 5 years, seems to indicate that the optimum yield is obtained when the rainfall is, at all events in Grande Savane, between 75 and 80 inches. But it appears certain, as will be seen from the following table, that above 80 inches, the yield in tons decreases rapidly,—except perhaps in Moka,—with the increased amount of the average yearly rainfall :

<i>Average yearly rainfall.</i>	<i>Tons cane per inch of rainfall.</i>
50 inches or below	.307
50 to 64 inches	.298
65 to 74    "	.312
75 to 80    "	.336
81 to 100   "	.248
Over 100    "	.151

*Estimation of 1913 Crop.*

A report on the estimation of the 1913 crop, dated December 2nd, 1913, was furnished to the Board of Agriculture Meeting of December 29th. This report analysed the crop estimates for the different districts. It may be expected that this estimate of 247,250 tons will be exceeded by about 2,750 tons making the total sugar crop for 1913 approximate to 250,000 tons, factory figures, against 252,000 tons in 1909-10.

*Future Work.*

Detailed studies of the average yields of sugar-cane in the different districts of the Colony are being continued. An analysis of the costs of production of sugar-cane both in the field and factory has been commenced. Arrangements have been made for acreage and stock returns and for manufacturing details to be collected and analysed, and regular statistical crop reports to the International Bureau of Agriculture, Rome, have been agreed upon.

22.4.14.

H. ROBERT.  
Statistician.

## ANNEXURE 5.

## REPORTS OF DIVISION OF GARDENS &amp; PLANTATIONS.

*Report of Chief Overseer.*

The appointment of Chief Overseer was filled on August 1st. 1913. This Officer has charge of the Central Experiment Station at Reduit and supervises the work of the Overseers in charge of Gardens and Plantations at Pamplemousses, Reduit and Curepipe. The Chief Overseer also supervises the field work in the experimental plots on estates.



## CENTRAL EXPERIMENT STATION.

*Reduit.*

A re-arrangement and improvement of the road system has been commenced, and a beginning has been made with regularizing the plots under experimental culture.

Plans for the sanitary improvement of the camp have been drawn up. The work has been commenced and it is hoped that when these improvements have been completed that the camp may serve as a model for estate camps. The old buildings have been improved and new ones erected.

*Expenditure.*

The expenditure from July 1st. to December 31st. has been as follows :—

Wages of labourers	...	Rs. 1669.14
Purchase of fertilizers	...	390.00
" " tools, harness &c.	...	89.73
" " baskets for cane seedlings	...	84.75
Clearing land	...	400.00
Improvement to Camp	...	107.51
		<hr/>
		Rs. 2,741.13

## SUGAR-CANE EXPERIMENTS.

*Crop.*

The crop at Reduit extended from September 16th. to October 18th, then from the 17th. to 30th. November.

The cutting was stopped for a month, as it was necessary to keep back certain fields for supplying tops for planting purposes.

A yield of 335,250 kilos was obtained, these were sold to Mon Désert Estate, St. Pierre, for Rs. 3,017.34. The cost of carting and loading amounted to Rs. 336.26.

Tops of the most promising varieties were distributed to 45 estates situated in the Grand Port, Savanne, Moka, Plaines Wilhems and Flacq districts of the Colony. Arrangements have also been made for a distribution to estates in the Pamplemousses, Rivière du Rempart and Black River districts during the planting season of these districts in April and May 1914.

*Seedlings.*

A large number of canes arrowed during the year throughout the island. Collections of seeds were made in Savanne, Plaines Wilhems, Pamplemousses, Black River and Moka Districts.

1,114 seedlings were raised; they were transplanted in Field 16 and look promising. The parentage of these canes has been carefully recorded. The majority have been raised from M.P. 89, a cane which is a vigorous grower but somewhat poor in sucrose and fibre. It is interesting to record that during the year cane seeds collected in the upper parts of the island were much more fertile than seeds collected in districts, such as Savanne, Pamplemousses and Black River, that usually supply cane arrows of exceedingly fertile seed.

## EXPERIMENTS WITH ECONOMICS OTHER THAN CANE.

Collections of seeds of economic plants were received from the following Departments of Agriculture: United States, South Africa, Java, Egypt, East Africa, Phillipines, Madagascar and Dominica, West Indies.

Plans have been drawn up for trials of varieties of maize, ground nuts, cow peas and other leguminous crops at the Central Experiment Station, and of maize, ground nuts, manioc, cotton, tobacco, cow peas and other leguminous crops at Pamplemousses. Seed of *Coffea robusta* have also been received from the Federated Malay States through the kind offices of Sir William Taylor. Some of these seeds have been planted at the Reduit, Pamplemousses and Curepipe Experiment Stations and by the gentlemen interested in the cultivation of coffee. The seeds germinated fairly satisfactorily but a large number of young plants died off in their early stages of growth.



## PAMPLEMOUSSES GARDENS &amp; EXPERIMENT STATION.

An economic section has been planned for these gardens. A section of forest land has been cleared for economic crops near to Mon Plaisir House. The re-arrangement of permanent economics is also being undertaken.

There has been a large amount of work necessary in the ornamental sections of the Pamplemousses Gardens.

Heavy pruning of shrubs in the borders has been necessary, removal of growth and replanting of large sections has had to be undertaken.

The re-labelling of the trees in the Gardens has also received attention.

## REDUIT GROUNDS.

The routine work of these Grounds has been continued. Further planting of ylang-ylang has been undertaken.

## CUREPIPE GARDENS &amp; EXPERIMENT STATION.

Plantations of tea with plants raised from specially imported Hybrid Assam tea from Ceylon were undertaken but a large number of the plants died out during the dry season of September to November. Arrangements have been made for the proper division of the Garden into nursery, ornamental and economic sections, and a considerable amount of work has been carried out during the year in improving the ornamental section.

## EXPERIMENTAL PLOTS ON ESTATES.

Plans for starting co-operative experimental plots on Estates have been designed by the Director. A manurial experimental plot at Beau Champ Estate was started during the year.

10th. April, 1914.

C. A. O'CONNOR,  
Head Overseer.

### REPORT ON WORK OF PAMPLEMOUSSES GARDENS & EXPERIMENT STATION.

From July 1st. 1913, the Gardens at Pamplemousses passed under the control of the Department of Agriculture.

The following expenditure was incurred from July 1st. to December 31st. 1913.

Salaries	...	...	...	Rs. 791.10
Ornamental :				
Wages	...	...	...	2,372.28
Supplies	...	...	...	496.78
Economic :				
Wages	...	...	...	510.53
Maintenance of apprentices...	...	...	...	272.53
				<hr/>
				Rs. 4,443.22

The receipts from January 1st. to December 31st. 1913 were as follows :—

	<i>Number</i>	<i>Value</i>
Forests Plants ...	29,285	Rs. 309.44
Economic Plants...	2,542	169.29
Ornamental Plants	476	16.58
Flowers, seeds, &c.	...	200.96
		<hr/>
		Rs. 696.27



## EXPERIMENT STATION.

## ECONOMICS.

*Sugar-cane Crop.*

An extension of the area for economics has been arranged and land was cleared during the months of September to December, plans for planting this area have been prepared by the Director.

The Sugar-cane varietal experiments were cut in September. A total crop of 67,460 kilos was obtained and sold to Beau Plan Estate for Rs. 539.68. Tops of 70 varieties were selected for further planting and tops of 14 of the best varieties were distributed to Beau Plan, Mon Rocher and the Mount Estates. The existence of *Phytalus Smithi* at Pamplémousses prevented a wider distribution.

*Seedlings.*

1142 seedlings were raised from seeds collected in Pamplémousses, Moka, Black River and Savanne Districts. These have been raised from 14 parents and many of them are from seeds which have been self fertilized. A careful record of parentage is being kept. The young plants were planted in December in land that can be irrigated when necessary.

*Coffee.*

Seeds of *Coffea robusta* were received from the Federated Malaya in April and sown. They germinated somewhat slowly and a large number of plants died off in their early stages of growth. With the rains of November and December they made good growth.

*Fruit.*

The crop of letchi fruits was very small and the fruits were of inferior size. Mangoes flowered profusely in June and July but set no fruit. The October flowering promises a fair crop.

*Nursery Work.*

45 grafts of selected mangoes were made during the year, 40 layers of lemons were prepared on Mon Desert Carié Estate and 70 layers of letchis were made.

## ORNAMENTAL.

During 1912-13 attention to nurseries of forest plants occupied so much time that the Ornamental Section of the Garden was hardly taken up. The Garden thereby became overgrown and for the months July to December 1913 has demanded close attention. The raising of large numbers of specimens of flowering and other ornamental plants for the borders has been begun. The replanting of the borders throughout the whole garden is to be taken up section by section.

The annual flower section looked well during the year, but owing to dry weather the flowering did not last very long.

## MISCELLANEOUS.

The work of labelling plants was recommenced in July 1913 and lists have been prepared for the new system of labelling to be undertaken for all the most interesting specimens.

Drains and canals were repaired during the year and extensive repairs to Mon Plaisir Canal were undertaken by Mon Rocher Estate—the costs thereof Rs. 532.81 being shared equally between Mon Rocher and the Botanic Gardens, Pamplémousses.

An exhibit of cut flowers was forwarded to the Exhibition held under the auspices of the Société Horticole in October. Flowers of exotic trees were also sent and awarded a special prize while an exhibit of *Coleus* raised from seed was awarded a bronze medal.

The Herbarium was under the charge of Mr. Delord. The cleaning and poisoning of specimens has been regularly attended to.

A Commemorative Stone of Marble has been provided during the year by Officers of the Military Forces of the Island to mark the two plants of *Araucaria excelsa* planted in August 1901 by Her Majesty Queen Mary (then H.R.H. the Duchess of Cornwall & York.)



## VISITORS.

There were 29,088 visitors to the Gardens during the year and 233 picnics. The largest number of visitors and picnics occurred in the month of January.

## SEED EXCHANGE.

Seeds and plants were given as exchange to three local persons during the year and to eight colonial agricultural departments. Receipts of seeds have been recorded from Mr. G. Regnard and from seven agricultural institutions.

## PLANTS PUT OUT.

One hundred and sixty nine permanent trees and shrubs were planted during the year, and careful notes of all plants that flowered during the year have been recorded for reference purposes.

15th. February, 1914.

L. M. LECLERC.

## REPORT ON WORK AT REDUIT GROUNDS.

The expenditure on these grounds has been as follows during the year :—

Staff	...	...	Rs. 1107.00
Wages of labourers &c.	...	...	3849.41
" " Prison Guards	...	...	383.78
Supplies	...	...	205.27
			<hr/>
			Rs. 5,545.46

The work has been of a routine character. The flower garden has been kept well stocked with annuals and the kitchen garden has received close attention. Certain fungus diseases of vegetables have caused trouble during the year and resulted in loss of crops.

Three labourers' huts were rethatched in November.

Thirty-six choice Geranium plants and twenty varieties of Cactus Dahlia were introduced and four consignments of economic and ornamental seeds were received from Mr. G. Regnard during the year.

Thirty-two plants of Ylang-Ylang received from La Retraite (Flacq) were planted out.

The rainfall during the year under review was 44.20 inches.

22.1.14.

A. MARGUERITTE,

Overseer.

## REPORT ON WORK OF CUREPIPE GARDENS.

These Gardens were under the supervision of the Forest Department up to the 30th. June 1913. From July 1st. they were transferred to the Agricultural Department. Mr. A. Margueritte was transferred to Reduit as Overseer and Mr. F. Leclerc was transferred from Pamplémousses as Acting Overseer from September 5th.

From January to June 30th. 1913, the Gardens and Nursery Gangs worked together.

*Casuarina equisetifolia* (fillaos) and eucalyptus plants were prepared for sale to the public and for supply to Crown Lands, Public Institutions and Forest Plantations.

## ORNAMENTAL.

In April the flower beds were prepared for annuals. The transplanting of same was done in June and the plants flowered abundantly till the end of December. At the Horticultural Show a good collection of cut roses were exhibited and much admired.

Collections of verbenas, Torenias, Dianthus, Phlox and Rhododendron were also sent. A special prize was obtained for the latter.

In the Ornamental Nurseries plants of different varieties of roses, azaleas, acahyphas, *Sanchizia nobilis*, crotons, camellias, hydrangea and palms were kept for sale to the public.



## ECONOMICS.

Seeds of *Coffea robusta* were received from Pamplémousses Gardens and 8 beds of them were carefully sown. Only a few hundred plants germinated : they are growing rather slowly. They have been forked.

The plantation of selected Hybrid Assam Tea plants raised from seed obtained from Ceylon has not been successful. A very large number of plants died in the dry weather of September to November. Their places have since been filled with locally collected seed of the Hybrid Assam variety.

## DISTRIBUTION OF PLANTS.

The distribution of Plants to Forest Nurseries and Plantations has been as follows :—

Cryptomeria japonica	...	...	82,498
Juniperus Bedfordiana	...	...	35,340
Pinus sinensis	...	...	83,600
Eucalyptus (robusta and gigantea)	...	...	92,530
Filaos	...	...	11,120
Miscellaneous	...	...	56,876
Total			361,964

The sale of plants to the public have been as follows :—

	Number	Value
Filaos	49,010	Rs. 489.85
Eucalyptus	44,271	442.71
Other Forest Plants	1,191	94.35
Fruit Plants	4	.48
Ornamental	250	62.44
Cut flowers	...	50.25
Miscellaneous	...	25.00
Total		Rs. 1,165.08

The rainfall during the year was 84.93 inches.

29.1.14.

F. LECLERC,

Overseer.

## ANNEXURE 6

## REPORT OF BOARD OF AGRICULTURE FOR 1913.

The Board of Agriculture was established under Article 4 of Ordinance No. 30 of 1912. It consists of :—

His Excellency the Governor, President,  
The Director of Agriculture, Vice-president,  
and the following members appointed under Notification No. 126 of July 5th. 1913 :—

The Honourable H. Leclézio, C.M.G.,	H. G. Ducray, Esq.,
" G. Antelme,	W. P. Ebbels, Esq.,
" J. A. Duclos,	Gustave Guimbeau, Esq.,
" M. Martin,	Amédée Hugnin, Esq.,
Pierre Adam, Esq.,	T. W. Innes, Esq.,
E. Carcenac, Esq.,	F. N. Langlois, Esq.,
Arthur Dalais, Esq.,	Gabriel Regnard, Esq.,
L. H. de Froberville, Esq.,	Adrien Wiehé, Esquire.,
W. E. Desplaces, Esq.,	Pundit Bolaram Mookteram.

Meetings of this Board were held on July 30th. and on December 29th. 1913. At the July meeting, His Excellency gave a brief survey of the establishment of the Department of Agriculture and of the Board of Agriculture.



The following matters received consideration :—

*Meeting of July 30th.*

1. Preliminary Report on Agricultural Practices in Mauritius by the Director of Agriculture.
2. Establishment of Experimental Plots on Estates.
3. Introduction of canes from other countries for experimental trial and for use in seedling work.
4. Raising of seedling canes.
5. Participation in the Rubber and Fibre Exhibition, London 1914.

*Meeting of December 29th.*

1. Introduction of stock for breeding purposes.
2. Destruction of Mongoose.
3. Proposed Consolidation Vanilla Ordinance.
4. Implemental tillage competitions and exhibitions.
5. The Rubber and Fibre Exhibition, London 1914.
6. The International Congress on Tropical Agriculture, London 1914.

The following reports were laid before the Board :—

*Meeting of July 30th.*

1. Appropriation of Funds of Station Agronomique as approved by the Governor and sanctioned by the Council of Government.
2. Statement regarding *Phytalus Smithi* in Pamplemousses District and at Réduit.
3. Report on Sugar-cane experiments in British Guiana.
4. Reports on investigations into Plant Pests and diseases from May 1st. to July 30th.

*Meeting of December 29th.*

1. Summary of Sugar-canes experiments for year 1913.
2. Estimation of Sugar-crop of 1913.
3. Report on introduction of Automatic Machinery for trial with *Furcroea gigantea* fibre.
4. Statement regarding *Phytalus Smithi*.
5. Re : remission of Customs duties on ploughs.
6. Reports on investigations into Plant Pests and diseases from August 1st. to December 24th.

25th. April 1914.

H. ROBERT,  
Secretary.

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The following matters received consideration:

Meeting of July 1944

1. A discussion of the report on Agricultural Research in Britain by the Director of Agriculture.
2. The establishment of a permanent committee for experimental trial and for use in teaching work.
3. The holding of a meeting of the committee.
4. The holding of a meeting of the committee.
5. The holding of a meeting of the committee.

Meeting of December 1944

1. The holding of a meeting of the committee.
2. The holding of a meeting of the committee.
3. The holding of a meeting of the committee.
4. The holding of a meeting of the committee.
5. The holding of a meeting of the committee.
6. The holding of a meeting of the committee.
7. The holding of a meeting of the committee.
8. The holding of a meeting of the committee.
9. The holding of a meeting of the committee.
10. The holding of a meeting of the committee.

The following reports were laid before the Board:

Meeting of July 1944

1. A report on the work of the Board of Agriculture as approved by the Government and recommended by the Council of Government.
2. A report on the work of the Board of Agriculture as approved by the Government and recommended by the Council of Government.
3. A report on the work of the Board of Agriculture as approved by the Government and recommended by the Council of Government.
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8. A report on the work of the Board of Agriculture as approved by the Government and recommended by the Council of Government.
9. A report on the work of the Board of Agriculture as approved by the Government and recommended by the Council of Government.
10. A report on the work of the Board of Agriculture as approved by the Government and recommended by the Council of Government.

Meeting of December 1944

1. A report on the work of the Board of Agriculture as approved by the Government and recommended by the Council of Government.
2. A report on the work of the Board of Agriculture as approved by the Government and recommended by the Council of Government.
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8. A report on the work of the Board of Agriculture as approved by the Government and recommended by the Council of Government.
9. A report on the work of the Board of Agriculture as approved by the Government and recommended by the Council of Government.
10. A report on the work of the Board of Agriculture as approved by the Government and recommended by the Council of Government.

A. ROBERT

Secretary

20th April 1944